

## WHAT IS CLAIMED IS:

1. A decision support system for a signal processing system comprising:
  - 5 a video processing system 115 for receiving and processing a video stream and providing a video output;
    - a video quality evaluation module 121 that receives the video output from the video processing system and evaluates the quality according to predetermined criteria;
    - 10 a video optimizer 100 adapted for receiving the evaluated quality of the video output from evaluation module 121 and level settings of parameters and for setting controls of the levels settings of parameters of video processing system 115, said video optimizer including a Multi Objective Genetic Algorithm (MOGA) engine, wherein said MOGA uses genetic algorithms to optimize the settings of controls for video processing system 115 to optimize quality at a predetermined level.
  - 15 2. The system according to claim 1, wherein said optimizer 100 includes a statistical analyzer 110 that associates at least one item with setting controls of the level settings of parameters of video processing system 115 to receive a certain image quality evaluated by quality evaluation module 121.
  - 20 3. The system according to claim 2, wherein said at least one item includes manufacturing costs.
  - 25 4. The system according to claim 3, wherein the manufacturing costs include time to market.
  5. The system according to claim 2, wherein said at least one item analyzed by the statistical analyzer 110 includes bandwidth availability.
  - 30 6. The system according to claim 2, wherein said at least one item analyzed by the statistical analyzer 110 includes network availability.

7. The system according to claim 1, wherein the image quality evaluation module evaluates quality of multimedia according to video, audio and text, and the MOGA 105 includes prioritizing instructions so as to prioritize the quality of audio, video and text components of a video stream.

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8. The system according to claim 8, wherein the system comprises a telephone with video capability and the quality of the audio portion has the highest priority.

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9. The system according to claim 8, wherein the system comprises a conference call system and the quality of the video portion has the highest priority.

10. The system according to claim 8, wherein the quality of audio is prioritized according to network congestion.

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11. The system according to claim 8, wherein the quality of audio is prioritized according to bandwidth availability.

12. The system according to claim 8, wherein the quality of audio is prioritized according to power dissipation.

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13. A method for a decision support system for a signal-based processor, comprising the steps of:

- (a) receiving a video-processing stream by a video processing system s300;
- (b) processing color, sharpness and noise cancellation according to initial default settings and parameters s305;
- (c) evaluating video quality by an objective video quality evaluation module s310;
- (d) using a video optimizer to provide level settings and control parameters for the video processing system based on feedback of quality from the video quality evaluation module;
- (e) determining s320 whether the video stream has ended, and repeating steps (c) through (e) until the video stream has ended.

14. The method according to claim 14 wherein step (e) further includes determining whether any additional video streams require processing.

5 15. The method according to claim 14, wherein the optimizer in step (a) includes a MOGA engine and a statistical analyzer.

10 16. The method according to claim 15, wherein the statistical analyzer will analyze at least one item associated with setting controls of the level settings of parameters of the video processing system to receive a certain image quality evaluated by a quality evaluation module.

15 17. The method according to claim 16, wherein the at least one item comprises a plurality of items and includes bandwidth availability, and the statistical analyzer interpolates the items.

18. The method according to claim 16, wherein the at least one item comprises a plurality of items and includes power dissipation, and the statistical analyzer interpolates the items.

20 19. The method according to claim 16, wherein the at least one item comprises a plurality of items and includes network availability, and the statistical analyzer interpolates the items.

25 20. The method according to claim 16, wherein the at least one item comprises a plurality of items and includes time to market, and the statistical analyzer interpolates the items.